

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMERICAN MEGATRENDS, INC.,
MICRO-STAR INTERNATIONAL CO., LTD,
MSI COMPUTER CORP.,
GIGA-BYTE TECHNOLOGY CO., LTD., and
G.B.T., INC.,
Petitioner

v.

KINGLITE HOLDINGS INC.,
Patent Owner

Case No. IPR2015-01197
Patent 6,487,656 B1

Before GLENN J. PERRY, TREVOR M. JEFFERSON, and
BRIAN J. McNAMARA, *Administrative Patent Judges*.

McNAMARA, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and
37 C.F.R. § 42.73

BACKGROUND

On November 23, 2015, we instituted an *inter partes* review of claims 1, 2, 10, 11, 19, and 20 of U. S. Patent No. 6,487,656 B1 (“the ’656 Patent”). Paper 14 (“Dec. to Inst.”). Kinglite Holdings, Inc. (“Patent Owner”) filed a Patent Owner Response (Paper 20, “PO Resp.”), American Megatrends, Inc., Micro-Star International Co., Ltd, MSI Computer Corp., Giga-Byte Technology Co., Ltd., and G.B.T., INC. (collectively, “Petitioner”) filed a Petitioner Reply (Paper 27, “Pet. Reply”). Petitioner filed a Motion to Exclude (Paper 30, “Mot. To Exclude”), and Patent Owner filed an Opposition to Petitioner’s Motion to Exclude (Paper 35, “Opp. To Mot. To Exclude”). A transcript of an oral hearing held on August 16, 2016 (Paper 36, “Hr’g Tr.”) has been entered into the record.

We have jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a). We base our decision on the preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

Having reviewed the arguments of the parties and the supporting evidence, we conclude that Petitioner has demonstrated by a preponderance of the evidence that the challenged claims are unpatentable.

THE ’656 PATENT

The ’656 Patent describes a system and method to enable PC manufacturers and others to provide additional Basic Input/Output System (BIOS) functionalities while minimizing the impact on system BIOS code. Ex. 1001, col. 2, ll. 19–22. In the ’656 Patent, when an interface module is interfaced to the system BIOS and when a request to perform a task is received, device information associated with the task is received from the system BIOS. *Id.* at col. 7, ll. 50–53. The interface module translates the

system device information to provide translated information, which is then transferred to a corresponding module. *Id.* at col. 7, ll. 53–56. Patent Owner notes that information regarding system devices, such as processor performance data and memory size, is accessed and displayed on a screen before the operating system takes control. Prelim. Resp. 3

ILLUSTRATIVE CLAIM

Claim 1 is illustrative.

1. A method to provide functionalities to a system BIOS, comprising:
 - interfacing an interface module to the system BIOS;
 - receiving a request from the system BIOS to perform a task;
 - receiving the system device information associated with the task from system BIOS;
 - translating, by the interface module, the system device information to provide translated information; and
 - transferring the translated information to a corresponding module.

GROUND OF INSTITUTION

In our Decision to Institute, we instituted trial on the following challenge to patentability:

Claims 1, 2, 10, 11, 19, and 20 as obvious under 35 U.S.C. § 103(a) over the combination of Nunn¹ and AMIBIOS.²

¹ U.S. Patent No. 6,317,828 B1 issued Nov. 13, 2001. Ex. 1003

² AMIBIOS Technical Reference. American Megatrends, Inc. 1998 (“AMIBIOS”). Ex. 1005

CLAIM CONSTRUCTION

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their “broadest reasonable construction in light of the specification of the patent” in which they appear. 37 C.F.R. § 42.100(b); *see also Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2141–46 (2016). The terms also are generally given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

In our Decision to Institute, we applied the following constructions agreed to by the parties and apply these same constructions in this Decision:

Term	Agreed Construction
A request . . . to perform a task	Soliciting action to be taken
Translating	Converting to another data format
Corresponding module	A software module associated with another module

In our Decision to Institute, we applied the broadest reasonable interpretation to the following term that required construction:

Interface module. We construed this term to mean *program instructions used to translate information and to transfer the translated information.* Dec. to Inst. 9.

Patent Owner does not dispute our construction explicitly or propose an alternative construction, but in its arguments states that “the ‘interface module’ is a program allowing manufacturers to provide additional functionality to the system BIOS.” PO Resp. 7. We discussed the term “interface module” extensively in our Decision to Institute, noting that the

function of the interface module recited in independent claims 1, 11, and 19 is to provide translated information and that the claim structure is consistent with the disclosure in the Specification that: “[T]he interface module translates the system device information to provide translated information. The translated information is then transmitted to a corresponding module.” Dec. to Inst. 8 (citing Ex. 1001, col. 7, ll. 54–56). The ’656 Patent states that the interface module “enables various parties such as PC system manufacturers and motherboard manufacturers to provide additional system BIOS functionalities.” Ex. 1001, col. 7, ll. 46–49. Neither this disclosure nor the claims limit use of the interface module to manufacturers, as argued by Patent Owner. Thus, in this Decision, we apply the same construction we applied in the Decision to Institute.

OBJECTION TO EVIDENCE

The Patent Owner Response states that “[f]or the reasons set forth in Kinglite’s motion to exclude, there are evidentiary issues surrounding AMIBIOS reference as a prior art publications. Paper No. 17.” PO Resp. 1. On December 7, 2015, Patent Owner filed Patent Owner’s Objection to Evidence Pursuant to 37 C.F.R. § 42.64(a)(1). Paper 17 (“PO Obj. to Evid.”). In its Objection, “Patent Owner asks the Patent Trial and Appeal Board to exclude Exhibit 1005 for the reasons set forth below.” PO Obj. to Evid. 2. However, Patent Owner did not preserve its objection by filing a motion to exclude the evidence, as required by 37 C.F.R. 42.64(c). In order to facilitate resolution of objections by the parties themselves, our rules are structured to require the objection to identify the grounds for the objection with sufficient particularity to allow correction in the form of supplemental evidence that the party relying on the evidence may serve within 10 business

days. 37 C.F.R. § 46.64(a), (b). In the event that an objection is not resolved, the objecting party may preserve the objection by filing a motion to exclude. 37 C.F.R. § 42.64(c). Patent Owner raised this issue in its Preliminary Response, and we outlined Patent Owner's options in our Decision to Institute. Dec. to Inst. 5–6. Patent Owner waived its objection on evidentiary grounds when it did not file a Motion to Exclude. We do not incorporate by reference into the Patent Owner Response arguments made in another paper. 37 C.F.R. § 42.6(a)(3).

In addition, the status of AMIBIOS as a publication is a substantive issue that is not proper subject matter of a motion to exclude. We addressed the substance of Patent Owner's contentions concerning AMIBIOS in IPR2015-01094, finding that AMIBIOS was publicly available at least as early as June 1998. *American Megatrends, Inc. v. Kinglite Holdings, Inc.*, Case IPR2015-01094, slip. op. at 9–13 (PTAB Nov. 04, 2016) (Paper 48, Final Written Decision). For the same reasons, we apply the same result in this Decision and find that AMIBIOS is prior art to the '656 Patent, which issued from an application filed on December 10, 1999.

ANALYSIS OF PRIOR ART CHALLENGES

Introduction

The sole challenge on which we instituted trial is Petitioner's contention that claims 1, 2, 10, 11, 19, and 20 are obvious under 35 U.S.C. § 103(a) over the combination of Nunn and AMIBIOS. We resolve the question of obviousness on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) objective evidence of nonobviousness, i.e., secondary

considerations. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). The test for obviousness is whether the combination of references, taken as a whole, would have suggested the patentees’ invention to a person having ordinary skill in the art. *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

We apply “an expansive and flexible approach” to the question of obviousness. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415 (2007). Whether a patent claiming the combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. To reach this conclusion, however, requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention. *Id.* In many cases a person of ordinary skill “will be able to fit the teachings of multiple patents together like pieces of a puzzle,” recognizing that a person of ordinary skill “is also a person of ordinary creativity, not an automaton.” *Id.* at 420–21. Against this general background, we consider the references, other evidence, and arguments of the parties.

Claim 1, 10, and 19

Independent claims 1, 10, and 19, which respectively are drawn to a method, computer usable medium having program codes embodied therein, and a system, recite similar limitations concerning providing functionalities

to a system BIOS. Therefore, we treat these claims together, using claim 1 as exemplary. For convenience, we refer to claim element designations used in Petitioner's claim charts.

We agree with Petitioner that Nunn and AMIBIOS concern providing functionalities to a system BIOS, as recited in the preamble of claim 1. Petitioner contends that Nunn discloses a setup program that is part of BIOS allowing a user to configure the operating system and select a particular initial program load (IPL) device. Pet. 14–15. According to Petitioner, in Nunn, the setup program presents to the user a list of adapter selections on-screen that permit the user to control the order of the drives for the operating system to be initialized as a boot drive. *Id.* at 15. Petitioner notes that AMIBIOS discloses that a setup program is typically requested by system BIOS when the user presses a function key, causing the generation of a hardware interrupt that calls an interrupt service routine. *Id.* at 16.

Turning to the claimed interface module (claim element 1.1), Petitioner argues that Nunn's Utility Setup Program is collated in BIOS ROM, is the interface module to the system BIOS, and provides displayable information about the configuration of the computer. *Id.* at 19.

Petitioner also cites Nunn as disclosing translating information relating to bootable devices interconnected to the computer into a different format in preparation for display, noting that a computer graphics module acts as a correspondent module to the setup program to display the translated information on screen. *Id.* at 19, 23–24. Thus, Petitioner contends that Nunn discloses claim element 1.4, i.e., translating by the interface module, the system device information to provide the translated information and claim element 1.5, i.e., transferring the translated information to a

corresponding module. Pet. 23–24. Petitioner also cites the video interrupt routine in AMIBIOS as disclosing claim element 1.5. Pet. 24.

Noting that Nunn discloses these features at a high level, and that information cannot be displayed without a monitor screen and associated graphics, Petitioner cites AMIBIOS as disclosing how system BIOS interacts with setup and other programs to facilitate displaying images. *Id.* at 20. AMIBIOS discloses that system BIOS, which provides fundamental services for proper operation and is active the entire time the computer is on, loads (bootstraps) the operating system and remains active for requests by the operating system to activate device drivers that service hardware components. Ex. 1005, 9–10. One part of the BIOS receives and processes requests from programs to perform standard BIOS services, using an interrupt mechanism. *Id.* at 8. The BIOS takes instructions from the operating system and translates these commands to the exact instructions that the hardware itself understands. *Id.* at 10. AMIBIOS also discloses a video BIOS and an Option ROM BIOS that employs shadowing and can be used, for example, to translate Ethernet commands into code the computer can understand and vice versa. *Id.* at 12.

Petitioner notes that setup invokes a BIOS service by issuing an INT 10h, for the video interrupt routine. *Id.* The functions performed include the graphics module setting the video mode, translating system configuration data into the format required by the graphics module, and the controller software, in tandem with the system BIOS, writing the character string produced by the program. *Id.* Thus, according to Petitioner, a person of ordinary skill would have understood that to display setup-related configuration data, when the setup program has renderable data to display,

the setup program requests video service from the BIOS, causing an interrupt to invoke a BIOS display service request, and the BIOS/Utility Setup gets the IPL device information that requires translation and formats it for compatibility with the graphics controller for display. *Id.*

Noting that Nunn's method is implemented in and operated by BIOS codes and that in Nunn a system setup program is part of BIOS, Patent Owner contends that Nunn does not disclose the claimed interface module because "[s]omething that is *in* BIOS would not be understood as interfacing with BIOS." PO Resp. 5. Petitioner acknowledges that "Nunn describes how a system Setup program is part of BIOS." Pet. 15. However, Petitioner responds that "a setup program, properly understood, is an interface program which interfaces with the system BIOS." Pet. Reply 8. According to Petitioner, packaging a setup program with system BIOS or in the same firmware is not significant because a setup module provides a graphical user interface (GUI) for the user to view and manipulate BIOS settings relevant to BIOS functions. *Id.*

Petitioner also points out that Patent Owner's expert, Dr. Nazarian, testified that a person of ordinary skill at the time of the '656 patent application would not have understood setup necessarily to be a part of system BIOS. Hr'g Tr. 34:10–22. Petitioner notes Dr. Nazarian's testimony that system BIOS does not need a setup program and that the setup program could be removed from system BIOS, so that the system would boot up using default settings, without the user having the option of entering setup and making adjustments. Pet. Reply 7 (citing Ex. 1015, Transcript of Deposition of Dr. Shahin ("Nazarian Tr." 22:1–17)). As further support for its position that setup is an optional module, Petitioner points to US Patent

5,836,013, which is the subject of *American Megatrends Inc. v. Kinglite*, Case IPR2015-01189. *Id.* at 8. (citing Ex. 1001, col 3, ll. 13–16 (“System ROM 210 [that] comprises BIOS (Basic Input/Output System) 310, and optionally setup program 303[.]”)). Petitioner also contends that AMIBIOS discloses modules in which system BIOS is always available as an interface between hardware and software, but other modules, including the BIOS Setup Utility execute only when the required conditions exist, i.e., the user presses <DEL>. Hr’g. Tr. 31:5–32:17; Ex. 1005, 9.

Nunn describes a BIOS/Utility display “routine.” Ex. 1003, col. 3, ll. 54–56. AMIBIOS states “[t]he BIOS (Basic Input/Output System) is a collection of routines between the hardware and systems software.” Ex. 1005, 7. Based on these disclosures in Nunn and AMIBIOS and on Dr. Nazarian’s testimony, we are persuaded that a person of ordinary skill would have been motivated to provide the claimed functionality in an interface module. In addition, we agree with Petitioner that, notwithstanding the language “interface to,” the claims do not limit the physical location of the claimed interface module and do not preclude implementing the claimed interface module as part of the BIOS code, which the disclosures in the references include as routines in a collection of routines.

Turning to claim element 1.4, Patent Owner argues that Nunn’s BIOS display “does not comprise ‘program instructions,’ nor does it translate or transfer information.” PO Resp. 5. In this context Patent Owner characterizes Nunn’s Setup display as a user interface to facilitate user interaction with the machine, rather than the claimed interface module. *Id.* at 6–7. Patent Owner contrasts Nunn’s approach with that of the ’656 Patent, arguing that the interface module of the ’656 Patent does not allow

for human interactions and instead enables PC system manufacturers and motherboard manufacturers to provide additional system BIOS functionalities with minimal impact to the system. *Id.*

Patent Owner’s argument is not persuasive. As Petitioner emphasizes, the Specification of the ’656 Patent does not state the invention is limited to interface modules developed by manufacturers: there is no such limitation in the claims, and we have not construed interface module to be so limited.

Patent Owner also argues that Petitioner has not provided evidence that a prior art user interface is capable of translating and transferring information. *Id.* at 7. Arguing that the evidence Petitioner relies upon only describes Nunn’s display of bootable devices on a screen, Patent Owner argues that “[n]owhere does Nunn expressly teach translating information of detected bootable devices for display.” PO Resp. 8–9 (citing Ex. 2008 ¶ 6). According to Patent Owner, “nothing . . . corresponding to the translation of information, e.g., a binary value to a text string, is conducted by the BIOS setup program, as required by the challenged claims. As there is no ‘translated information,’ there also can be no ‘transfer’ of such information, which is separately required by the claims.” *Id.* at 9 (emphasis omitted).

Petitioner responds that a graphical user interface (GUI) can be an interface module, as we have construed that term, if it translates and transfers information, and that Nunn is more than just a display because its disclosure of a setup program demonstrates the presence of program instructions, e.g., a software routine for display. Pet. Reply 5–6 (citing Ex. 1010, Abstract).

Nunn’s setup display allows a user to specify a bootable device to serve as the boot drive of the computer system. Ex. 1003, Abstract.

Petitioner argues that a graphics controller requires initialization and must be able to send image data to the screen (Pet. Reply 8–9 (citing Nazarian Tr. 33:10–20)). Petitioner cites extensively to the testimony of Patent Owner’s expert, Dr. Nazarian, as supporting the proposition that a graphics display satisfies the translation and transfer features recited in the claims. Petitioner notes, for example, Dr. Nazarian’s testimony that one purpose of the claimed translator is to take raw system BIOS data and translate it into a readable character string, even if not needed for display on a screen, (Pet. Reply 9 (citing Nazarian Tr. 43:17–44:14; 126:5–8)) and that a setup program, such as that disclosed in Nunn and AMIBIOS, allows a user to examine and alter raw system information stored in CMOS and accessible through system BIOS (*id.* (citing Nazarian Tr. 87:6–10; 90:12–18; Righi Decl. ¶¶ 23, 37)). Petitioner also cites AMIBIOS as disclosing translating raw data into parameters (translated information) to be used by a corresponding video service module in which the raw data is formatted with an attribute (BL), line and column numbers, and color, so that once the parameters are created the INT 10 video interrupt routine can display the parameters (translated information). Pet. Reply 10–11. In view of these disclosures, we agree with Petitioner that the references disclose claim element 1.4.

Turning to the remaining elements of claim 1, Petitioner cites Nunn’s disclosure of a setup program allowing the user to configure the operating system and specify a bootable device as teaching claim element 1.2, i.e., receiving a request from the system BIOS to perform a task. Pet. 23. We agree. We also agree with Petitioner that Nunn’s disclosure of a system BIOS making routine queries to an option ROM discloses claim element 1.3, i.e., receiving device information associated with the task from system

BIOS. *Id.* This feature is also disclosed in AMIBIOS, which states that one part of BIOS receives and processes requests, in the form of interrupts, from programs to perform standard BIOS services. Ex. 1005, 8. Thus, we agree with Petitioner that all the limitations of independent claims 1, 10, and 19 are found in the references.

Petitioner asserts that a person of ordinary skill would have been motivated to combine the teachings of Nunn and AMIBIOS in order to make using setup easier. Pet. Reply 3 (citing Righi Decl. ¶ 70). Patent Owner contends that motivation is lacking because each reference discloses a user friendly start-up environment. PO Resp. 4. Patent Owner also notes that AMI's first customer, Dell Computer, was the assignee who employed inventor Nunn as a BIOS engineer at the time and argues "[t]hat Ms. Nunn, . . . did not think to use a reference generated by AMI is compelling empirical evidence as to how non-obvious it was to combine Nunn and the AMIBIOS references." *Id.* at 5.

AMIBIOS and Nunn address aspects of using system BIOS, and, as discussed concerning making the use of setup easier, Petitioner has articulated a reason a person of ordinary skill and creativity would have motivated to combine Nunn and AMIBIOS to arrive at the invention recited in independent claims 1, 10, and 19. We agree with Petitioner that Patent Owner offers no support for its assertions concerning inventor Nunn. The motivations or thinking behind any action or inaction by Dell or inventor Nunn is pure speculation by Patent Owner. As Petitioner points out, Patent Owner's expert, Dr. Nazarian, testified that any number of commercial or other circumstances having nothing to do with obviousness under 35 U.S.C. § 103 can explain Dell's behavior. In addition, Patent Owner has not

identified any law to support its theory that an incorporation of references into a real world system is required to demonstrate obviousness.

In consideration of the above, we agree with Petitioner that the Nunn and AMIBIOS references disclose the features recited in independent claims 1, 10, and 19 and that a person of ordinary skill would have been motivated to combine these references to arrive at the invention recited in these claims.

Claims 2, 11, and 20

Remaining challenged claims 2, 11, and 20, which depend from independent claims 1, 10, and 19, respectively, each recite a similar limitation, i.e., the corresponding module performs (or is caused to perform) the task associated with the transferred translated information. Petitioner cites Nunn's disclosure of a user specifying a bootable device to operate as a boot drive of the computer system, as disclosing this limitation. Pet. 24 (citing Ex. 1003, col. 7, ll. 36–38). Patent Owner disputes Petitioner's "equat[ing] a user's specification of the boot drive with 'a task associated with the transferred information'" and argues that to be consistent with Mr. Righi's analogizing a graphics module to a corresponding module, "the user's specification of the boot drive must be performed by the graphics module. This clearly does not occur." PO Resp. 32.

Petitioner notes Nunn's disclosure of translating information concerning bootable devices interconnected to the computer into a different format in preparation for display, and argues that a computer graphics module acts as a correspondent module to a setup program for displaying the translated information on the screen for the user to view. Pet. 19; Pet. Reply 14. We agree with Petitioner that a person of ordinary skill would have understood that a user's selection of a particular function triggers the BIOS

to make a function call request to setup, e.g., to show the user selection on the screen via the graphics module, causing the graphics module to perform the task associated with the transferred and translated system information, as recited in claims 2, 11, and 20. Pet. Reply 14–15.

In consideration of the above, we agree with Petitioner that the Nunn and AMIBIOS references disclose the features recited in dependent claims 2, 11, and 20 and that a person of ordinary skill would have been motivated to combine these references to arrive at the invention recited in these claims.

MOTION TO EXCLUDE

Petitioner moves to exclude the deposition testimony of its expert because the cross examination was conducted by Patent Owner's back-up counsel, George Summerfield, before he was admitted *pro hac vice*. Mot. To Exclude. We have addressed this issue in related proceedings. *See American Megatrends Inc., et. al. v. Kinglite Holdings, Inc.*, Case IPR2015-01079, slip op. at 25–29 (PTAB October 27, 2016) (Paper 49, Final Written Decision). In accordance with our decision in those proceedings, Petitioner's Motion to Exclude in this proceeding is DENIED.

CONCLUSION

For the reasons discussed above, we conclude that claims 1, 2, 10, 11, 19, and 20 are unpatentable under 35 U.S.C. § 103 as obvious over the combination of Nunn and AMIBIOS.

ORDER

In consideration of the above it is

ORDERED that claims 1, 2, 10, 11, 19, and 20 of the '656 Patent are unpatentable;

FURTHER ORDERED that Petitioner's Motion to Exclude is
DENIED; and

FURTHER ORDERED, that because this is a final written decision,
parties to the proceeding seeking judicial review of the decision must
comply with the notice and service requirements of 37 C.F.R. § 90.2.

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